# Region III Public Meeting 5 — Environmental Educators Frederick, Maryland March 18, 1999

## Background

In October 1998, the EPA Region III Public Sector Needs Identification Team launched an assessment of customer needs and preferences for environmental information. This assessment involved a series of five facilitated public meetings conducted in cooperation with the EPA Region III office. Each meeting investigated a different stakeholder group, its current information gathering methods, its information needs, special issues for the stakeholder group, and investigation of the Customer Information Process (CIP) and Information Attribute (IA) priorities for the group.

The CIP and IA analysis tools were developed in 1997 for an EPA customer study conducted by the Center for Environmental Information and Statistics (CEIS) and the Environmental Monitoring for Public Access and Community Tracking (EMPACT) Program. This study sought to characterize customer needs for environmental and health-related information, preferences for accessing information, and interest in having more time-relevant monitoring and reporting capabilities. The CIP/IA framework is described in more detail below.

## Summary Statement

The public meeting in Frederick, Maryland brought together environmental science and biology teachers from elementary, middle, and high schools. As a whole, the group found it very difficult and time-consuming to find useful information on the Internet. None were successful using the EPA Web site to find data. And none were aware of the range of information services offered by EPA.

Much of the discussion focussed on the time and financial constraints faced by educators, and ways in which EPA could assist in breaking down these barriers. Suggestions included direct support such as educational and training programs, money, and laboratory materials. The group also agreed that they found articles published by the EPA useful for relating international and national environmental issues to the community level and student experiences. The group agreed that students at all grade levels who are studying the environment benefit most from hands-on experiences out-of-doors, but educators lack the time, money, and proper structure to organize such events. Members sought support to make outdoor experiences really meaningful to the students, by finding ways of sharing collected information.

## Wish List

The group's wish list consisted of items that focussed on improving access to and awareness of EPA information and technical support, easier access to grants money and other support, and professional development. The group agreed that it would be most helpful if EPA were to provide the following:

- Periodic announcements of new information and offerings to teachers through telephone, traditional mail, and E-mail;
- Improved access to EPA experts and speakers through teacher training, regional workshops, and teacher and student internships;
- Graduate credit for certain activities;
- Financial assistance;
- Collaboration with businesses to recycle discarded equipment through donations to local schools;
- Improved, streamlined grant-writing processes that require less writing and follow-up time; and
- User-friendly Web site where environmental data and information are readily available.

## Information Experience

The group agreed that the types of data they wanted to use for environmental lessons and projects in the classroom were very difficult to find. Participants searched for studies on environmental topics such as water quality, population growth, and point sources of pollution, and primarily looked for specific numerical and technical data to use for classroom projects, such as dissolved oxygen rates in different parts of the Chesapeake Bay.

Both participants and their students found the Internet time-consuming and frustrating to use and to find environmental data. In addition, members commented that sites were difficult to navigate, that recommended or hotlinked sites often turned out to be "dead leads" that were no longer available. One participant expressed the group's frustrations declaring, "My concern with the environmental sites is that most of them seem to be very general. The environmental data seems very superficial, and the EPA site is very confusing . . . you just follow dead leads and get lost within the site." Attendees pointed to a few sites that were useful, including Maryland's Department of Natural Resources, the World Bank, the Central Intelligence Agency, the Chesapeake Bay Trust, and a site called Access Excellence, created by educators for biology teaching and learning.

Internet availability among group participants varied. Newer schools tended to have Internet access in the classroom and computer labs with enough computers for all students. Some older schools had a limited number of computers labs or library access, but did not have Internet access in the classroom. Educators were wary of how easily Internet searches could lead to inappropriate sites and material. Generally, older students had more freedom in school to do supervised Internet searches, while in younger grades the Internet was used primarily by the teachers as a reference, and kids were sometimes given the opportunity to access specific sites.

However, many participants agreed that many students of all ages used the Internet as a major resource at home.

One participant remarked that he was most successful finding information through a contact within a company or organization. He stated that without that contact person, collecting resources was "impossible." Other ways of getting information included attending seminars or workshops through trade associations such as the Maryland Association of Environmental and Outdoor Educators and the Maryland Association of Science Teachers.

## Problems with EPA Information

Although many attendees visited EPA's Web site, none found it to be a good source of environmental information. Participants said they found the site to be very difficult to use, and one member agreed, "The EPA Web sites are very disorganized . . . and it is really hard to track anything down." In reference to the EPA Web site, another participant stated, "EPA seems to be much more focussed on legislation . . . or looking at programs and descriptions of programs, and not what they are finding out within the programs." He then questioned whether they could not find the data because the kind of data they needed was not available on EPA's site, or because the site was simply too complex to find the information.

In addition, members of the group were not familiar with the range of information services and formats offered by EPA. Some attendees used a few of EPA's printed pamphlets and brochures that discussed subjects such as emissions testing and risk assessment. One participant suggested that EPA send educators colorful documents or booklets that describe the types of information available from each of the databases, Web sites, and hotline numbers. Members agreed that colorful paper is important to them as educators, because of the "mountains" of white paper they regularly had to handle.

## Special Areas

Throughout the discussion there was strong agreement that participants spent a great deal of their time searching for interesting information and projects to supplement their textbooks, and putting an environmental curriculum together involved a great deal of "scrambling." One member said, "You're constantly looking and grabbing and absorbing and thinking and hoping and praying and begging."

The group strongly agreed that environmental education ideally should be "hands-on" education, and outdoor experiences were beneficial. Many took students out to nearby water bodies to physically gather water samples for water quality testing. One participant noted, "Those are the kinds of things that kids remember . . . rather than just the book work and all that stuff." However, participants agreed that the data they gathered was not very meaningful on its own. Universally, the group thought that getting the data outside of the school and sharing it with students at other schools made it more meaningful.

One participant remarked that partnering with EPA would be a "wonderful gift." Another agreed, "If you gave us that structure and that guidance . . . that would be wonderful." As an example of a supportive structure in a partnership program, one attendee cited the GLOBE program sponsored by NASA. In the GLOBE program, schools are supplied with materials and trained on how to use them to gather weather and soil data.

Participants universally concurred that day and overnight field trips are very important to environmental education. One attendee described a wonderful outdoor program in Fairview, Maryland where students of all grade levels could do hands-on scientific testing. However, lack of funding prevented the educators from taking the students on outdoor trips as often as they liked. Many participants took advantage of resources offered by private environmental organizations. Because many groups were known to present biased information, all members agreed that they were careful to present the students with all sides of environmental issues, but they would not turn down educational opportunities. One member commented, "If there's money out there and it will help us with part of our programs, it's not like we're going to say no to it."

**Structure and Support in Partnerships with Educators**

Participants reported that the following types of assistance from EPA would help to provide an ideal structured outdoor environmental, educational program:

- Provide access to a test site;
- Standardized sampling equipment and standardized forms to record data;
- On-site experts to provide training and assistance;
- Data sharing and other programs to make results more meaningful;
- Follow-up support, including assistance with data compilation and distribution between schools, data standardization, and mentoring for older students; and
- Professional development opportunities for educators.

The group strongly desired support, through well structured partnerships, for success in activities outside the classroom.

Another participant explained that many private businesses and organizations offered grant opportunities, but they were very time consuming. "There's a tremendous amount of work that goes into just meeting all the requirements that a lot of teachers don't have, so they just don't do it." As a whole, the group thought that if the grant writing process could be streamlined, less follow-up time was required, and the money was paid out up front rather than piecemeal over the life of the grant, more educators would be able to take advantage of grants.

## Customer Information Process/Information Attributes

*EPA adopted a framework to compile and categorize meeting commentary. This framework included an assessment of the Customer Information Process (CIP) and the Information Attributes (IA) important to EPA stakeholders. The CIP has four basic elements: Identification (establishing the existence and location of information), Acquisition (obtaining the information in an appropriate format), Management (adapting, translating, integrating, or combining the information to the customer's unique purpose), and Use (applying, interpreting, or assimilating the information in a value-added manner). Second, the*

*meetings have been assessed according to Information Attributes. Topical attributes for the IA analysis included: Media (e.g., air, water); Industry (sector), Geography (e.g., site specific, local, regional); Legislation/Regulation; Time Dimension (e.g., update schedule); Demographics; Accuracy/Reliability; and Other Topics such as health concerns.*

This section highlights the CIP and IA priorities for the Frederick, Maryland environmental educators meeting.

The group's biggest concerns related to the Customer Information Process were focussed on identification and acquisition. Group members had trouble finding good sources of information that presented the types of specific numerical data they were seeking. In reference to the EPA Web site, one participant said, "They are not presenting it to us in any usable fashion." Another said, "Give me numbers. Don't give me summaries of information."

Participants also discussed the common difficulty of integrating and using the information they found into classroom lessons, particularly hand-on projects and labs. Many had trouble finding experiments that are age-appropriate. One high school educator said, "My biggest problem is finding hands-on experiments that work. They're either on that very high end of college level, or at the very elementary level, and for the high school kids there's got to be a balance there." A few participants complained that they often took the time to rewrite labs and experiments. All agreed that they would like an easy way to find appropriate labs that include good directions on how to obtain the materials and perform the experiments.

As discussed above, members had trouble using the information students gathered from outdoor experiments in a way that was meaningful. All agreed that some structure and guidance through an EPA-sponsored program across schools would add value to the work they did. One participant said of the water sampling, "If you could put it under an umbrella . . . where all the pieces fell together and everybody was doing it, I think there could be some meaningful work being done."

Attendees also touched on the importance of certain information attributes. Some members of the group, particularly those that taught the older students, attempted to relate their lessons to actual current conditions and were therefore very concerned with the timeliness of data. Text books that were used in the classroom are three to four years old, and much of the data on the Internet was not updated. One participant stated that some of the scientific journals had current information, but finding timely data was a "constant search."

Regarding the reliability of information on the Internet, educators tended to have greater trust in information if it was on a government-sponsored site. One participant said, "If it's an EPA site or a NOAA site or it's a USGS site, we'll consider that to be fairly valid data."

## EPA/Region III

Participants agreed that they did not view EPA as an agency that involved itself in educational programs. One member stated of EPA, "I haven't found them to be that approachable. NASA . . . a part of their program has been to reach out to schools . . . But I haven't seen that kind of outreach from EPA. It seems like they're really tied up in their regulatory stuff and have not been school-friendly." Another stated, "My perception has always been that they're [EPA] fairly remote and not as easily accessible [as other sources]."

Many participants suggested ways that EPA could do a better job of distributing information to educators. Because of time constraints, it was very important to the group that EPA bring new information directly to them. One member said that her mailbox at work was the best way, and stressed that the information should be brightly colored to easily distinguish it from the piles of white paper she received every day. To be sure that EPA reaches all pertinent teaching staff, other participants suggested that EPA coordinate with an environmental representative in each county, or attend the county supervisors' meetings that are held twice a year to discuss new offerings and distribute information. Another suggested EPA establish a listserve where educators could communicate with experts in various areas of responsibility.

## Participants

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Clarksburg Elementary School

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Rocky Hill Middle School

Jeff Garrison
New Market Middle School

Dale E. Peters
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## EPA Observers

Larry Brown
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